# CHAPTER 47

# LANDSCAPING DESIGN CRITERIA

## 47.1 General

This chapter provides a framework for the designer to design landscaping within the District's ROWs and public areas. This criteria is not intended to direct the designers in development of private landscaping or other onsite development;. The designer shall refer to the District's Zoning Regulations for on-site landscape design criteria. The designer should adhere to the District's Conservation Ordinance, which requires, that a water demand calculation be completed for all planting plans.

## 47.2 Intent

The intent of these design criteria is to beautify the District and its many common areas through the planting of trees, the appropriate use of hardscape, while practicing water conservation, through drip irrigation, and drought resistant plants of the District's Municipal Code. The District is committed to the reduction of water consumption in landscape irrigation and encourages the application of Xeriscape design and maintenance principles. All trees, plantings and work shall meet the **American Nurseryman Standards**. The District will maintain trees through pruning.

## 47.3 Roadside Development

Roadside development is the treatment given to the roadside to conserve, enhance, and effectively display the natural beauty of the landscape through which the highway passes. The plans shall be submitted as an integral part of the plans as defined in **Part I - Procedures** of this manual. The costs of such improvements shall be included in the Cost Estimate for Public Improvements as required in these Standards. All non-hardscape areas within the ROW shall be seeded, planted or covered within the design criteria of this section. Employing as many of the following landscaping treatments as possible into the final design enhances and emphasizes the natural beauty of the roadside.

### 47.3.1 Local Streets

For all residential local streets, the adjacent homeowner shall be responsible for planting and maintaining the ROW behind the sidewalk.

### 47.3.2 Local Street Commercial

For all commercial local streets, the adjacent property owner shall be responsible for designing, planting and maintaining the ROW behind the curb. This design shall include the sidewalk as required by these Standards. The

property owner shall install plantings and irrigation, (if necessary), within the guidelines of these Standards. All non-hardscape areas within the ROW shall be seeded, planted or covered within the guidelines of this Chapter. All on-site landscaping shall be designed in accordance with the District Urban Forestry Guidelines.

### 47.3.3 Arterials, Collectors, and Gateway Entry Streets

For all arterials, collectors and entry streets within the District, including medians, the Landscape design shall be in accordance with the District Urban Forestry Guidelines.

### 47.3.4 Downtown Streetscape Impact Area

This area is generally bounded by Pennsylvania Avenue, M Street, North Capitol Street, 15th Street, N.W. The trees to be planted in this area are designated in the Master Street Tree Plan in the DDOT **Downtown Streetscape Regulations, August 2000** or latest edition.

### 47.3.5 Medians

To assure normal tree development, the minimum width dimension for a tree box cutout is 4 ft. by 9 ft. Trees are not to be planted in tree boxes or continuous strips (grass) if this width threshold is not met.

All medians or sections of medians that are less than 4 ft. wide must be completed in a hardscape, including stamped concrete, brick, flagstone or exposed aggregate concrete. No landscaping will be allowed within the medians that are narrower than 4 ft. If a median is between 4 ft. and 10 ft., it shall be at the District's discretion whether the median is hardscaped or irrigated and landscaped.

### 47.3.6 Tree Box

Tree boxes shall consist of rod iron loops and borders on three sides. No landscape fabric or stone mulch is permitted in the tree boxes. When replacing trees in an existing row, select new trees of similar ultimate characteristics to those being replaced, including form, scale, texture, size and color. Tree boxes in the Downtown Streetscape Impact Area shall be in accordance with the DDOT **Downtown Streetscape Regulations, August 2000** or latest edition.

The following items are requirements to be followed in the design of trees and their location in order to reduced utility conflicts:

- Trees shall not be planted closer than 40 ft. from the curb face at intersections and street corners within the site distance triangle.
- Trees shall not be planted within 40 ft. of a controlled intersection, or other traffic control device (this does not include "No Parking" signs.
- Within the Sight Distance Triangle, non-plant materials over 32 in., or plant materials over 6 in. high, are not permitted.
- Maintain the minimum sight distance triangle and corner triangle distances for safe view of oncoming traffic and pedestrians.
  - Trees to be planted a minimum of 10 ft. from a driveway or alley.
  - Trees to be planted a minimum of 15 ft. from a light pole, preferably 20 ft.
  - Trees to be planted a minimum of 10 ft. from a fire hydrant.
  - Trees should be located in the middle of the tree lawn space.
  - Trees shall be designed to ensure the driver's visibility of all regulatory signs.
  - Additionally, trees shall not be planted:
    -- directly in front of a sidewalk or the steps to a dwelling,
    -- where existing public or private tree cover will interfere with a tree's growth,
    -- in front of forested or open areas where there are no existing dwellings.

## 47.3.7 Tree Size

All trees shall be 2 – 2.5 in. caliper (unless otherwise designated)) when planted and shall be guaranteed for 2 years or replaced. Please see the following:

- Trees planted in tree lawns should be 2 in. caliper, minimum.
- The branching height of a tree on the traffic side of the street shall be not less than 15 ft. above the street.
- The branching height of mature trees on the pedestrian side of the street shall be not less than 8 ft. above the sidewalk.
- Small varieties of thornless and fruitless trees may be used only in median areas or traffic islands where lower branching habits will not interfere with pedestrians, vehicles or driver visibility.
- Small to medium trees shall be used where power lines overhead would not allow a large street tree to reach maturity without severe pruning.
- All medians or sections of medians over 4 ft. are allowed to use drought resistant plantings. However, only drip irrigation systems will be allowed. No pop-up sprinklers will be allowed in medians to minimize wastewater that occurs with pop-up sprinklers.

## 47.3.8 Tree Lawn

On arterials, all sidewalks shall be set back from the curb a minimum of 6 ft. Pop-up sprinklers may be approved in tree lawns over 8 ft. in width. No tree lawn shall be less than 4 ft. in width on the city streets in the District.

## 47.4 Plantings

### 47.4.1 Street Trees

Design for street trees should respond to the uses on the street. The following factors are guidelines for determining how and when trees should be used within the landscaping areas. They are:

- Urban Forestry will ascertain type of species to plant.
- Select trees that will fit when they are mature. Narrow areas suggest a narrow tree and open areas suggest a wide tree.
- Where tree lawns do not exist, tree grates or pavers are recommended to protect tree roots and pedestrians.
- Use tree grates where pedestrian traffic is high. Minimum openings on the tree grates are 24 in. diameter. Pavers shall be inserted into the holes in the grates.
- Business owners will be required to obtain a permit from Urban Forestry to plant trees in the business districts and will be required to sign an agreement to maintain the tree grate.
- Trees may be grouped in areas upon approval of the District.

### 47.4.2 Location

The designer shall consider the mature tree's shape and size during design and before planting, so that the tree has room to grow. Where signs, lights, overhead or underground utilities, utility poles and fire hydrants would limit mature tree size, adjustments in species or location should be considered to minimize excessive pruning. The following items are suggestions or guidelines in the design of trees:

- Plant trees with regular spacing in straight rows to create a continuous street edge. Adjust spacing only slightly for driveways and lights. On arterials, the planted trees may be varied for visual appeal. Locate trees in a straight-line midway between curb and detached walk, even where the width of the tree lawn varies.
- Tree spacing shall be as follows, using the larger dimension whenever possible:
  - Where no overhead wires are present, use 35 – 40 ft.
  - Where overhead wires are present, use 20 – 25 ft.

-- Tree lawns may not be elevated.
-- Medians shall be elevated.

## 47.4.3 Recommended Turf Grasses

Turf should be planted on prepared soil from seed or sod. Seeding allows a greater turf selection, but requires approximately six months and regular maintenance to become established. Newly seeded areas require protection from pedestrians and must be kept moist until the seeds germinate. All irrigated turf areas require organic soil amendments at the rate of at least 3 cubic yards per 1000 sq. ft. Alternatives to bluegrass are required. They are as follows:

- Mixed Fine Fescue, Rye Grass, and Bluegrass - This mix works in sun and shade, suits a number of climate and soil conditions, and provides improved shade, disease, salt and moisture stress tolerance over pure bluegrass.
- Tall Fescue/ Turf Type - Deep green color, shade and salt tolerant, and drought-resistant because of its deep root system. Include at least three improved varieties of turf type tall fescue in the blend.

## 47.4.4 Recommended Trees/Plants

All trees should fit the microclimate, soils, sun, moisture, budget and maintenance environment in which they are planted. This is a major concern in areas with high levels of pollution, and automobile or pedestrian damage. Trees selected for urban streets should be able to endure pollution, compacted soils, minimal water, and low maintenance.

Trees near walks should be thornless and fruitless to minimize maintenance and to reduce pedestrian hazards. They must be strong-wooded, resistant to most diseases and insects, single-trunked, with upright growth and a medium to long life expectancy. Branches should resist breaking.

Drip irrigation may be installed for street trees in commercial streets that require minimal water. Irrigation must be designed to provide the appropriate amount of water to each tree with minimal waste. Easily adjustable, automatic irrigation systems are recommended.

Along commercial streets, trees should be selected that will minimize the obstruction of views to retail signs. Use trees with the appropriate forms and character. Utilize tree spacing that supports this concept.

## 47.4.5 Covers

Covers provide seasonal color and serve as a buffer between people and cars. Ground cover plantings provide functional and aesthetic benefits, however maintenance is extremely important. Plantings, other than trees in the streetscape, may include turf, ground covers or shrubs. In commercial streetscapes with a large area between the sidewalk and the street or low pedestrian volume, a tree lawn of grass may be most appropriate. This area helps soften the street environment along the street edge.

Specific site conditions must be fully understood prior to plant selection. Local microclimates and soils are key factors that determine which plants will thrive. Where possible, low water requiring plants are selected. Trees and shrubs will require less water and will thrive better if placed in planting beds, rather than turf beds.

Tree lawns must be at least 8 ft. wide to accommodate irrigation system and to provide adequate room for healthy tree root systems. Turf shall be provided where the average width of the tree lawn is 8 ft. or more. In medians, turf should be limited to median areas greater than 10 ft. In median areas, any width less than 4 ft. shall be hardscaped.

Tree lawns should be planted with sod or low ground covers, (below 6 in. in mature height), in residential areas and in commercial areas where pedestrian traffic does not warrant hardscape.

Very narrow tree lawns or those in high traffic areas may be paved with brick, flagstone or concrete payers, and/or colored or scored concrete. All tree lawn areas designated by the District, as high commercial areas shall be hardscaped.

## 47.5 Tree Space Beautification

Communities and abutting property owners may plant and maintain Tree Space Beautification with approval from the Department. This section complies with **DC Law 8-21, "Tree Space Beautification Regulation Act"**

### 47.5.1 Tree Space

Tree space is the unpaved area of public space that lies between the curb and sidewalk, commonly reserved by the DC government for planting trees.

### 47.5.2 Plants

- Use plants that have a shallow root system.
- Plants should not grow taller than 18 in.

- Plants are to be contained in the space and not extend outside of its borders.

### 47.5.3 Borders

- For the safety of people exiting their vehicles, borders should not be placed on the curbside of the tree space.
- Borders should not be less than 4 in. or greater than 12 in. high from the curb.
- Wickets and other tripping hazards are strictly prohibited.

### 47.5.4 Responsibility

Tree space beautification must be undertaken solely at the personal expense and risk of the abutting homeowner. This area shall be under the immediate care and keeping of the abutting property owner.

The District reserves the right to enter the tree box area for construction or maintenance activities. DDOT will give notice to the abutting property owner if removal of beautification materials within the tree space is required; this will allow the Owner to remove plants and materials prior to construction work. The grade or height of the tree space shall not be changed except with mulch.

## 47.6 Freeways and Interstate Highways

### 47.6.1 Landscape Treatment

The extent of landscape treatment will vary according to the amount of landscape manipulation and area visibility. The most visible areas must receive the greatest attention. To achieve the necessary blending, concentrate much of the landscaping effort near the base of the fill and the top of the cut lines. When planting larger trees, specify them to be placed near the top of the cut slopes or the toe of the fill. Keep them beyond the clear zone and, if required, beyond the snow storage area in snow plowing areas.

On the higher speed roadways, planting groups of one or two tree species can provide adequate treatment. More specie diversity along with appropriate groundcover shrubbery is preferred in urban planting situations.

### 47.6.2 Earthwork

Design cut-and-fill slopes, not only to satisfy slope stability and balance material quantities, but also to improve the appearance of the final project. Use variable slope ratios for both cut and fill slopes. Avoid using constant slope ratios. The use of slope rounding at the top of cuts is commonplace. Round the ends of cuts and blend the ends of fills into the cut slopes.

When practical, include in the design some slope molding techniques to imitate the existing landscaping elements. Slope molding goes beyond variable slope and rounding concepts. With slope molding, a deliberate attempt is made to break up the uniformity of a finished slope. On long cut slope faces, lay back the draws and accent the ridges. Warp slopes around existing large boulders and rock outcrops.

In areas of natural draws, lay back or flatten the cut slope to match that of the draw. This only generates a small amount of additional material and greatly enhances the appearance of the cut slope. This material can be used to flatten fill slopes or mold then into natural land forms common to the project area.

### 47.6.3 Vegetation Clearing

The emphasis should be to promote scenic views and enhance the natural beauty of any project. A balance is needed that emphasizes vegetation patterns above and below the highway slope.

### 47.6.4 Revegetation

Revegetated slopes are not only pleasing to view but are stabilized and require little or no maintenance. Re-established vegetation is also important as cover and food for wildlife.

Select grass seed that is native to or adaptable to the area. The seed mixture shall satisfy criteria for elevation and slope exposure changes. Several seed mixtures may be required to satisfy all conditions on a relatively long project. Use soil mulches and netting to stabilize and protect the ground until grass is established.

Where practical, conserve topsoil from the project limits and replace it on the finished slopes. The topsoil not only provides needed fertility and a growing medium for grasses, it contains an abundance of native seeds. These forbs, weeds, and grasses usually grow fast and dense and will blend in with the undisturbed vegetation that effectively brings the background vegetation onto the cut slope.

Shrubs and trees can be planted to primarily beautify the disturbed roadside areas and blend them into the undisturbed areas. Using hydrophilic shrubs, such as willow and birch, grouped in areas of excess soil moisture, will aid in stabilizing the area. Locate all plant groupings in areas that are the most visible to the motorist.

It is FHWA policy that at least ¼ of 1 percent of funds expended for landscape projects be used to plant native wildflowers, except in ornamental landscapes, or unless a waiver is granted by the District. A waiver shall be documented with adequate justification in support of all findings and conclusions. An ornamental landscape is one that is irrigated, has barked shrub beds, and has irrigated grass that is routinely mowed.

Requests for waivers can only be granted for the following conditions:

- Wildflowers cannot be satisfactorily grown
- The available ROW is to be used for agricultural purposes
- There are no suitable available planting areas
- The planting poses a threat to endangered or rare plant species

Erosion control seeding is not a landscape item although wildflower seeding associated with the erosion control seeding mix can satisfy wildflower-seeding requirements in a landscape project. In order for wildflowers to perpetuate themselves, they must be permitted to go to seed and become dormant. Identify on the plans all areas to be seeded with wildflowers. Provide in the contract for the installation of suitable markers to identify the wildflower seedbeds for roadside management and maintenance personnel.